What Is Claimed:

1. An isolated, purified or recombinant complex comprising a POSH polypeptide and a POSH-associated protein (POSH-AP).

2. The complex of claim 1, wherein the POSH-AP comprises a polypeptide selected from the group consisting of: PKA, SNX1, SNX3, ATP6V0C, PTPN12, PPP1CA, GOSR2, CENTB1, DDEF1, ARF1, ARF5, PACS-1, EPS8L2, HERPUD1, UNC84B, MSTP028, GOCAP, EIF3S3, SRA1, CBL-B, RALA, SIAH1, SMN1, SMN2, SYNE1, TTC3, VCY2IP1 and UBE2N (UBC13).

3. The complex of claim 1, wherein the POSH-AP comprises a polypeptide selected from the group consisting of: ARHV (Chp), WASF1, HIP55, SPG20, HLA-A, and HLA-B.

4. The complex of any one of claims 1-3, wherein the POSH polypeptide is a human POSH polypeptide.

5. An isolated, purified or recombinant complex comprising HERPUD1 and a Ubiquitin ligase.

6. The complex of claim 5, wherein the Ubiquitin ligase is selected from the group consisting of: POSH, CBL-B, TTC3, and SIAH1.

7. A method for identifying an agent that modulates an activity of a POSH polypeptide or POSH-AP, the method comprising identifying an agent that disrupts a complex of any one of claims 1-3, wherein an agent that disrupts a complex of any of claims 1-3 is an agent that modulates an activity of the POSH polypeptide or the POSH-AP.

8. A method of identifying an antiviral agent, comprising:

(a) identifying a test agent that disrupts a complex comprising a POSH polypeptide and a POSH-AP; and

(b) evaluating the effect of the test agent on a function of a virus,

wherein an agent that inhibits a pro-infective or pro-replicative function of a virus is an antiviral agent.

9. The method of claim 8, wherein the POSH-AP is selected from the group consisting of: PKA, SNX1, SNX3, PTPN12, GOSR2, CENTB1, ARF1, ARF5, PACS-1, EPS8L2, HERPUD1, SMN1, SMN2, UNC84B, MSTP028, GOCAP, CBL-B, SYNE1, UBE2N (UBC13), SIAH1, TTC3, WASF1, HIP55, RALA, and SPG20.

10. The method of claim 8, wherein the virus is an envelope virus.

11. The method of claim 8, wherein the virus is a Human Immunodeficiency Virus.

12. The method of claim 8, wherein the virus is a West Nile Virus.

13. The method of claim 8, wherein the virus is Moloney Murine Leukemia Virus (MMuLV).

14. The method of claim 8, wherein evaluating the effect of the test agent on a function of the virus comprises evaluating the effect of the test agent on the budding or release of the virus or a virus-like particle.

15. A method of identifying an anti-apoptotic agent, comprising:

(a) identifying a test agent that disrupts a complex comprising a POSH polypeptide and a POSH-AP; and

(b) evaluating the effect of the test agent on apoptosis of a cell,

wherein an agent that decreases apoptosis of the cell is an anti-apoptotic agent.

16. A method of identifying an anti-cancer agent, comprising:

(a) identifying a test agent that disrupts a complex comprising a POSH polypeptide and a POSH-AP; and

(b) evaluating the effect of the test agent on proliferation or survival of a cancer cell,

wherein an agent that decreases proliferation or survival of a cancer cell is an anti-cancer cell.

17. The method of claim 16, wherein the POSH-AP is selected from the group consisting of: PKA, SNX1, PTPN12, PPP1CA, ARF1, ARF5, CENTB1, EPS8L2, EIF3S3, CBL-B, RALA, SIAH1, TTC3, ATP6V0C, and VCY2IP1.

18. The method of claim 16, wherein the cancer cell is a cell derived from a POSH-associated cancer.

19. A method of identifying an agent that inhibits trafficking of a protein through the secretory pathway, comprising:

(a) identifying a test agent that disrupts a complex comprising a POSH polypeptide and a POSH-AP; and

(b) evaluating the effect of the test agent on the trafficking of a protein through the secretory pathway

wherein an agent that disrupts localization of said POSH-AP is an agent that inhibits trafficking of a protein through the secretory pathway.

20. The method of claim 19, wherein step (b) comprises evaluating the effect of the test agent on the trafficking of a myristoylated protein through the secretory pathway.

21. The method of claim 19, wherein step (b) comprises evaluating the effect of the test agent on the trafficking of a viral protein through the secretory pathway.

22. The method of claim 19, wherein (b) comprises evaluating the effect of the test agent on the trafficking of a protein associated with a neurological disorder through the secretory pathway.

23. The method of claim 22, wherein the protein associated with a neurological disorder is amyloid beta precursor protein.

24. A method of identifying an agent that inhibits the progression of a neurological disorder, comprising:

(a) identifying a test agent that disrupts a complex comprising a POSH polypeptide and a POSH-AP; and

(b) evaluating the effect of the test agent on the trafficking of a protein through the secretory pathway

wherein an agent that disrupts localization of a POSH-AP is an agent that inhibits progression of a neurological disorder.

25. The method of claim 24, wherein the POSH-AP is selected from the group consisting of: HERPUD1, CBL-B, SIAH1, and TTC3.

26. The method of claim 25, wherein the POSH-AP is HERPUD1.

27. A method of identifying an agent that inhibits the progression of a neurological disorder, comprising:

(a) identifying a test agent that disrupts a complex comprising a POSH polypeptide and a POSH-AP; and

(b) evaluating the effect of the test agent on the ubiquitination of a protein.

28. The method of claim 27, wherein the POSH-AP is HERPUD1.

29. A method of treating a viral infection in a subject in need thereof, comprising administering an agent that inhibits a POSH-AP in an amount sufficient to inhibit the viral infection.

30. The method of claim 29, wherein the agent is selected from the group consisting of:

i) an agent that inhibits a kinase activity of the POSH-AP;

ii) an agent that inhibits expression of the POSH-AP;

iii) an agent that inhibits the ubiquitin ligase activity of the POSH-AP;

iv) an agent that inhibits the phosphatase activity of the POSH-AP;

v) an agent that inhibits the GTPase activity of the POSH-AP; and

vi) an agent that inhibits the ubiquitination of the POSH-AP.

31. The method of claim 29, wherein the POSH-AP comprises a polypeptide selected from the group consisting of: PKA, SNX1, SNX3, SMN1, SMN2, PTPN12, GOSR2, CENTB1, ARF1, ARF5, PACS-1, EPS8L2, HERPUD1, UNC84B, MSTP028, GOCAP, CBL-B, SYNE1, UBE2N (UBC13), SIAH1, TTC3, WASF1, HIP55, RALA, and SPG20.

32. The method of claim 31, wherein the POSH-AP comprises a polypeptide selected from the group consisting of: PKA, HERPUD1, MSTP028, CBL-B, and UBE2N (UBC13).

33. The method of claim 32, wherein said agent is selected from the group consisting of: an siRNA construct, a small molecule, an antibody, and an antisense construct.

34. The method of claim 33, wherein the agent is an siRNA construct comprising a nucleic acid sequence that hybridizes to an mRNA encoding the POSH-AP.

35. The method of claim 34, wherein the agent is an siRNA construct or an antisense construct that inhibits the expression of a polypeptide selected from the group consisting of PKA, HERPUD1, MSTP028, CBL-B, and UBE2N (UBC13).

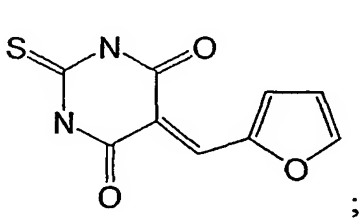
36. The method of claim 35, wherein the agent is an siRNA construct or an antisense construct that inhibits the expression of HERPUD1 or MSTP028.

37. The method of claim 36, wherein the siRNA construct inhibits the expression of MSTP028.

38. The method of claim 36, wherein the siRNA construct inhibits the expression of HERPUD1 and is selected from the group consisting of: 5'-GGGAAGUUCUUCGGAACCUdTdT-3' and 5'-dTdTCCCUUCAAGAAGCCUUGGA-5'.

39. The method of claim 33, wherein the small molecule inhibitor is selected from among the following categories: adenosine cyclic monophosphorothioate, isoquinolinesulfonamide, piperazine, piceatannol, and ellagic acid.

40. The method of claim 33, wherein the small molecule is selected from among:



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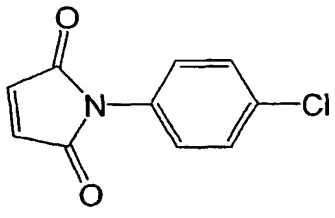

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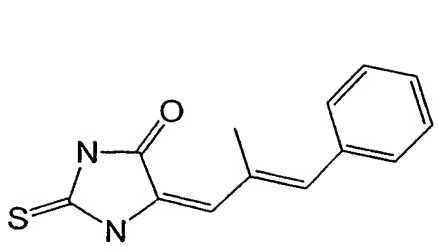
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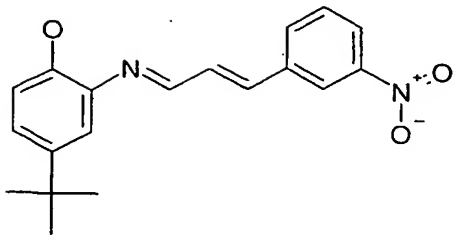
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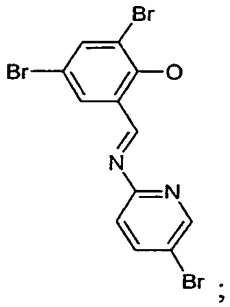
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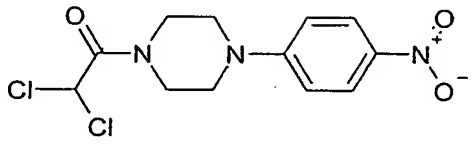
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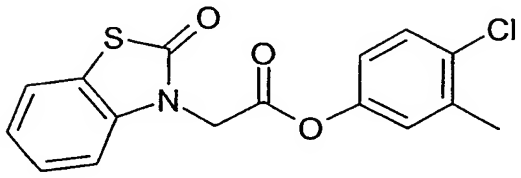


41. The method of claim 23, wherein the small molecule inhibits the ubiquitination of a POSH-AP.

42. The method claim 29, wherein the subject is infected with an envelope virus.

43. The method of claim 42, wherein the envelope virus is an HIV.

44. The method of claim 42, wherein the envelope virus is a WNV.

45. The method of claim 29, wherein the virus is a MMuLV.

46. Use of a protein kinase A inhibitor for the manufacture of a medicament for treatment of a viral infection.

47. Use of an inhibitor of HERPUD1 for the manufacture of a medicament for treatment of a viral infection.

48. Use of an inhibitor of MSTP028 for the manufacture of a medicament for treatment of a viral infection.

49. A packaged pharmaceutical for use in treating a viral infection, comprising:

(a) a pharmaceutical composition comprising an inhibitor of a POSH-AP and a pharmaceutically acceptable carrier; and

(b) instructions for use.

50. The packaged pharmaceutical of claim 49, wherein the viral infection is caused by an envelope virus.

51. A method for identifying an antiviral agent comprising:

(a) identifying a test agent that inhibits an activity of or expression of a POSH-AP; and

(b) evaluating an effect of the test agent on a function of a virus.

52. A method of evaluating an antiviral agent comprising:

(a) providing a test agent that inhibits an activity of or expression of a POSH-AP; and

(b) evaluating an effect of the test agent on a function of a virus.

53. The method of claim 51 or 52, wherein the virus is an envelope virus.

54. The method of claim 51 or 52, wherein the virus is a Human Immunodeficiency Virus.

55. The method of claim 51 or 52, wherein the virus is a West Nile Virus.

56. The method of claim 51 or 52, wherein the virus is a MMuLV.

57. The method of claim 51 or 52, wherein evaluating the effect of the test agent on a function of the virus comprises evaluating the effect of the test agent on the budding or release of the virus or a virus-like particle.

58. The method of claim 51 or 52, wherein the POSH-AP is selected from the group consisting of: PKA, SNX1, SNX3, PTPN12, GOSR2, SMN1, SMN2, CENTB1, ARF1, ARF5, PACS-1, EPS8L2, HERPUD1, UNC84B, MSTP028, GOCAP, CBL-B, SYNE1, UBE2N (UBC13), SIAH1, TTC3, WASF1, HIP55, RALA, and SPG20.

59. The method of claim 58, wherein the POSH-AP is HERPUD1.

60. The method of claim 58, wherein the POSH-AP is MSTP028.

61. The method of claim 51 or 52, wherein the test agent is selected from among: an antisense nucleic acid, an siRNA construct, a small molecule, an antibody and a polypeptide.

62. The method of claim 61, wherein the siRNA construct inhibits the expression of HERPUD1 and is selected from the group consisting of: 5'-GGGAAGUUCUUCGGAACCUdTdT-3' and 5'-dTdTCCCUUCAAGAAGCCUUGGA-5'.

63. A method of identifying an agent that modulates a POSH function, comprising:

a) identifying an agent that modulates a POSH-AP; and

b) testing the effect of the agent on a POSH function.

64. A method of evaluating an agent that modulates a POSH function, comprising:

a) providing an agent that modulates a POSH-AP; and

b) testing the effect of the agent on a POSH function.

65. The method of claim 64 or 65, wherein the POSH-AP comprises a polypeptide selected from the group consisting of: PKA, SNX1, SNX3, ATP6V0C, PTPN12, PPP1CA, GOSR2, CENTB1, DDEF1, ARF1, ARF5, PACS-1, EPS8L2, HERPUD1, UNC84B, MSTP028, GOCAP, EIF3S3, SRA1, CBL-B, RALA, SIAH1, SMN1, SMN2, SYNE1, TTC3, VCY2IP1 and UBE2N (UBC13).

66. The method of claim 64 or 65, wherein the POSH-AP comprises a polypeptide selected from the group consisting of: ARHV (Chp), WASF1, HIP55, SPG20, HLA-A, and HLA-B.

67. The method of claim 64 or 65, wherein testing the effect of the agent on a POSH function comprises testing the effect of the agent on the production of viral particles or virus like particles in a cell infected with an envelope virus.

68. The method of claim 64 or 65, wherein testing the effect of the agent on a POSH function comprises testing the effect of the agent on a POSH enzymatic activity.

69. The method of claim 68, wherein the POSH enzymatic activity is ubiquitin ligase activity.

70. The method of claim 64 or 65, wherein testing the effect of the agent on a POSH function comprises testing the effect of the agent on POSH-mediated localization or secretion of a protein.

71. The method of claim 64 or 65, wherein testing the effect of the agent on a POSH function comprises testing the effect of the agent on the interaction of POSH with a POSH-AP.

72. The method of claim 71, wherein the POSH-AP is a small GTPase.

73. The method of claim 72, wherein the small GTPase is selected from the group consisting of: ARF1, ARF5, and RALA.

74. The method of claim 64 or 65, wherein the test agent is selected from among: an antisense nucleic acid, an siRNA construct, a small molecule, an antibody and a polypeptide.

75. A method of identifying an agent that modulates a HERPUD1 function, comprising:

a) identifying an agent that modulates POSH; and

b) testing the effect of the agent on a HERPUD1 function.

76. A method of evaluating an agent that modulates an HERPUD1 function, comprising:

a) providing an agent that modulates POSH; and

b) testing the effect of the agent on a HERPUD1 function.

77. The method of claim 75 or 76, wherein testing the effect of the agent on a HERPUD1 function comprises contacting a cell with the agent and measuring the effect of the agent on ubiquitination of HERPUD1 in the cell.

78. A method of treating a viral infection in a subject in need thereof, comprising administering an agent that inhibits MSTP028 in an amount sufficient to inhibit viral infection.

79. The method of claim 78, wherein said agent is selected from the group consisting of: an siRNA construct, a small molecule, an antibody, and an antisense construct.

80. The method of claim 79, wherein the agent is an siRNA construct comprising a nucleic acid sequence that hybridizes to an mRNA encoding the MSTP028.

81. A method of inhibiting an activity of a POSH-AP in a cell, comprising contacting the cell with an inhibitor of POSH.

82. The method of claim 81, wherein the POSH-AP comprises a polypeptide selected from the group consisting of: PKA, SNX1, SNX3, ATP6V0C, PTPN12, PPP1CA, GOSR2, CENTB1, DDEF1, ARF1, ARF5, PACS-1, EPS8L2, HERPUD1, UNC84B, MSTP028, GOCAP, EIF3S3, SRA1, CBL-B, RALA, SIAH1, SMN1, SMN2, SYNE1, TTC3, VCY2IP1 and UBE2N (UBC13).

83. The method of claim 81, wherein the inhibitor of POSH is selected from among the following:

i) an agent that inhibits a POSH activity; and

ii) an agent that inhibits expression of a POSH.

84. The method of claim 83, wherein the POSH activity is ubiquitin ligase activity.

85. A method of treating a POSH-associated disease in a subject, comprising administering a POSH-AP inhibitor to a subject in need thereof.

86. The method of claim 85, wherein said POSH-AP inhibitor is an agent selected from the group consisting of:

i) an agent that inhibits a kinase activity of the POSH-AP;

ii) an agent that inhibits expression of the POSH-AP;

iii) an agent that inhibits the ubiquitin ligase activity of the POSH-AP;

iv) an agent that inhibits the phosphatase activity of the POSH-AP;

v) an agent that inhibits the GTPase activity of the POSH-AP; and

vi) an agent that inhibits the ubiquitination of the POSH-AP.

87. The method of claim 85, wherein the POSH-associated disease is a viral infection.

88. The method of claim 85, wherein the POSH-associated disease is a POSH-associated cancer.

89. The method of claim 85, wherein the POSH-associated disease is a POSH-associated neurological disorder.

90. A method of identifying an anti-viral agent, comprising:

a) forming a mixture comprising a POSH polypeptide, a POSH-AP and a test agent; and

b) detecting phosphorylation of the POSH polypeptide,

wherein an agent that inhibits phosphorylation of POSH is an anti-viral agent.

91. A method of identifying an anti-viral agent, comprising:

a) forming a mixture comprising a POSH polypeptide, a POSH-AP, ubiquitin and a test agent; and

b) detecting ubiquitination of the POSH-AP,

wherein an agent that inhibits ubiquitination of the POSH-AP is an anti-viral agent.

92. The method of claim 91, wherein the POSH-AP is HERPUD1.

93. A method of identifying a modulator of POSH, comprising:

a) forming a mixture comprising a POSH polypeptide, a POSH-AP and a test agent; and

b) detecting phosphorylation of the POSH polypeptide,

wherein an agent that alters phosphorylation of POSH is an agent that modulates POSH.

94. A method of identifying a modulator of POSH, comprising:

a) forming a mixture comprising a POSH polypeptide, a POSH-AP, ubiquitin and a test agent; and

b) detecting ubiquitination of the POSH-AP,

wherein an agent that inhibits ubiquitination of the POSH-AP is an agent that modulates POSH.

95. The method of claim 91, wherein the POSH-AP is HERPUD1.

96. A method of treating or preventing a POSH associated cancer in a subject comprising administering an agent that inhibits a POSH-AP to a subject in need thereof, wherein said agent treats or prevents cancer.

97. The method of claim 96, wherein the POSH-AP comprises a polypeptide selected from the group consisting of: PKA, SNX1, PTPN12, PPP1CA, CENTB1, ARF1, ARF5, EPS8L2, EIF3S3, CBL-B, RALA, SIAH1, TTC3, ATPV0C, and VCY2IP1.

98. The method of claim 96, wherein the cancer is associated with increased POSH expression.

99. A method of treating or preventing a POSH-associated neurological disorder in a subject comprising administering an agent that inhibits a POSH-AP to a subject in need thereof, wherein said agent treats or prevents the neurological disorder.

100. The method of claim 99, wherein the POSH-AP comprises a polypeptide selected from the group consisting of: PTPN12, DDEF1, EPS8L2, HERPUD1, GOCAP, CBL-B, SIAH1, SMN1, SMN2, TTC3, SPG20, SNX1, and ARF1.

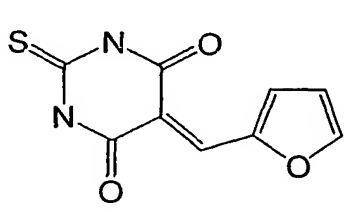
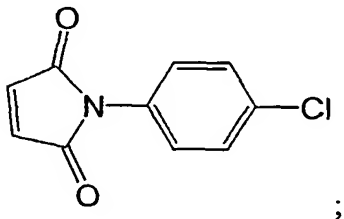
101. A method of treating a neurological disorder comprising administering an agent to a subject in need thereof, wherein said agent, inhibits the ubiquitin ligase activity of POSH.

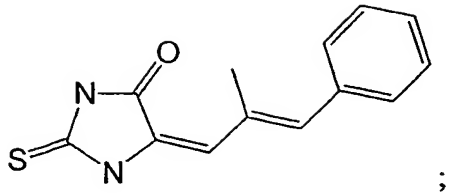
102. A method of treating a neurological disorder comprising administering an agent to a subject in need thereof, wherein said agent inhibits the ubquitination of a POSH-AP.

103. The method of claim 101 or claim 102, wherein the neurological disorder is selected from among: Alzheimer's disease, Parkinson's disease, Huntington's disease, schizophrenia, Niemann-Pick's disease, and prion-associated diseases.

104. The use of an agent of claim 103, wherein the neurological disorder is Alzheimer's disease.

105. The method of claim 101 or claim 102, wherein said agent is selected from the group consisting of: an siRNA construct, a small molecule, an antibody, and an antisense construct.

106. The method of claim 105, wherein the small molecule is selected from among:  ;  ;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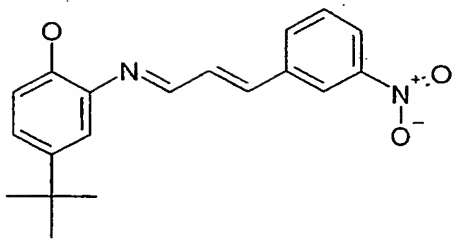
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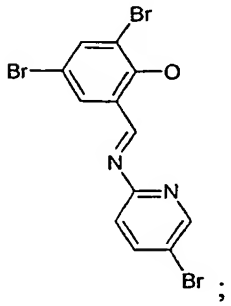
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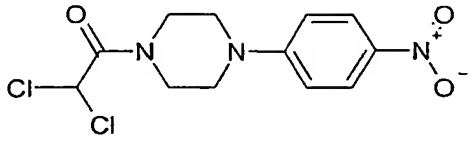
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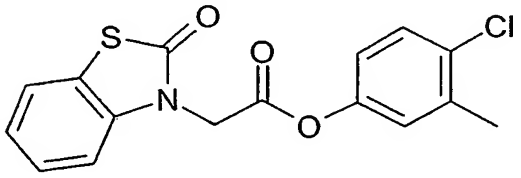

107. The method of claim 102, wherein the POSH-AP is HERPUD1.

108. The method of claim 61, wherein the siRNA construct inhibits the expression of MSTP028 and is selected from the group consisting of: 5'-AAGTGCTCACCGACAGTGAAG-3' and 5'-AAGATACTTATGAGCCTTTCT-3'.